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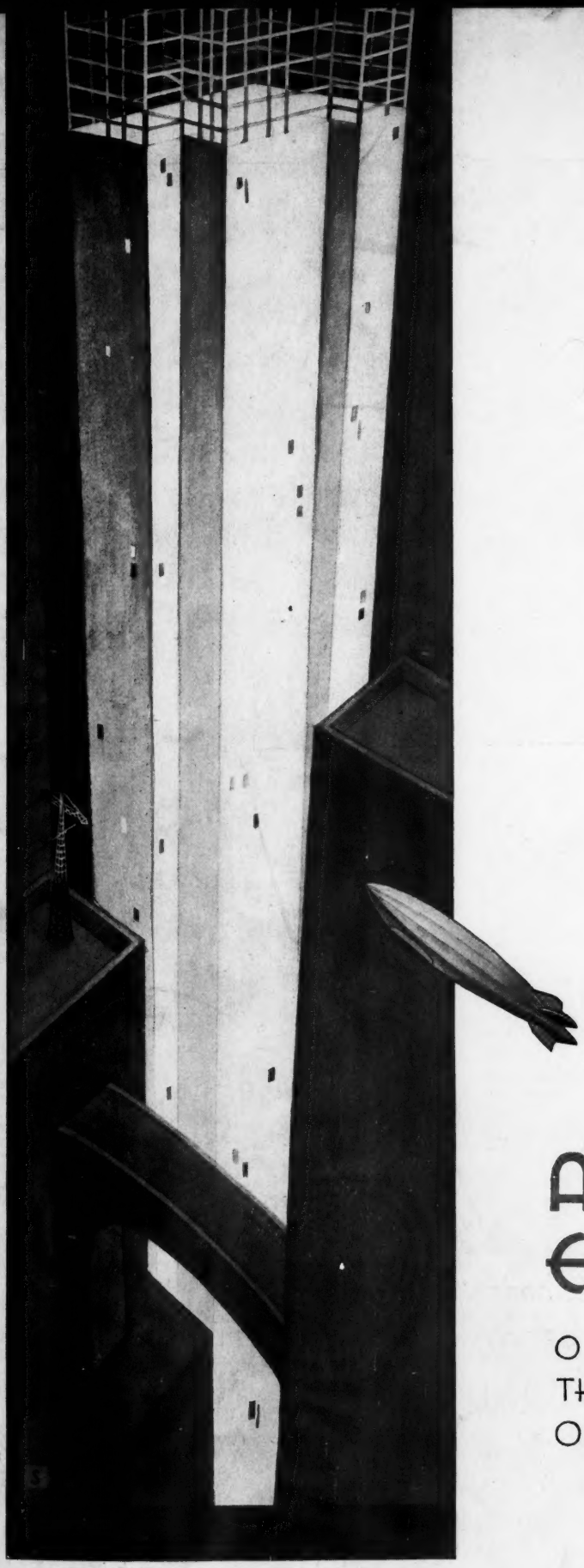

The AMERICAN ENGINEER

OFFICIAL PUBLICATION
THE NEW YORK STATE SOCIETY
OF PROFESSIONAL ENGINEERS

ANUARY + + 1932

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OF
THE NEW YORK STATE SOCIETY
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Arthur V. Sheridan, Editor

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A REFLECTION UPON 1931

Has A Lesson Been Learned?

As one gazes upon the rising and receding waters of time, the year 1931 looms forth as the crest of a wave breaking over a foundering ship of sophistry and senility. Stunned by the results of a regime of financiers and political economists, the nation finds itself but little inclined to save those who in a most authoritative manner have for the past generation dissertated and orated upon what they called the Science of Business. As though business could be a science! And above all that anything, even predicated upon science, could be developed and directed by persons who cannot distinguish between demonstrable knowledge and theories born of personal opinions and differing in a greater or lesser degree with every individual and changing with every generation.

The civilization of the moment is one of mechanical complexity and the responsibilities of urbanism are proving difficult to administer. The creator of that civilization is the engineer, but he is not, and unfortunately has not been, the director thereof. The causes are his, but not the effects. He has given to mankind the opportunity for culture and urban existence, but can hardly be held accountable for the inability of society to properly utilize this opportunity. One unconsciously recalls the great classic wherein the Creator is pictured as doubting the wisdom of having created and endowed man.

The understanding and appreciation of a civilization so largely predicated upon the principles of physical and mathematical sciences can hardly be acquired or measured by theories of ologies or isms which are nothing more than the opinions of men, despite the fact that they are termed sciences. Neither can such a civilization be directed without the aid of those who made it possible. The engineer is vital to the maintenance of the present state of human society. Not that he is possessed of all the attributes essential to effectively conducting the affairs of mankind. Unfortunately, he is not. More often than otherwise his understanding of the humanities is below par, but he at least realizes that merely terming opinions and doctrines science does not make them so and that a theory which cannot be unqualifiedly and invariably demonstrated has no place in the world of science and may become detrimental to life, health and property if so promulgated or applied.

Engineers are not accustomed to offering extenuations and apologies and a single failure is sufficient to discard an unproven opinion. But not so with expounders of the Science of Business who substitute "Prosperity is just around the corner" for the "Sauve qui peut" which they hold in reserve for emergency. And in the meantime, with the knee in suppliance bent they hope that a miracle will save the sinking ship and justify the open invocation of smiles and professed assurance of prosperity rapidly approaching.

The most baneful influence of the past two years has been the puerile, childish attitude of those persons who, not actually in want, have been invoking theories of that much abused, misused and misunderstood subject termed modern psychology to provide a panacea that will maintain the welfare of the greatest nation of modern, if not all, civilization.

Happy days are here again; Smile, Darn You, Smile; Be an optimist; Laugh your troubles away. Such are the therapeutics for a national malady. What a parody on civilization! Millions facing starvation, thousands enduring misery, and the army of well fed and feeble minded read, listen to and sing paeans dedicated to happiness, actually believing that such will provide work and relieve the distress of millions of their brothers and fellow citizens begging leave to toil that they may live.

The ability to laugh is said to be one of the features differentiating man from the rest of the animal kingdom. Apparently there are many humans who believe that laughing is the natural state of man and that by laughing long enough and loud enough all else will become non-existent. They forget that laughing is sometimes an indication of imbecility. Neither laughter, unpremised logic nor shallow promises will relieve the pangs of misery and want. If anyone thinks it will, let him try it

on some one of the thousands of unfortunates whose very existence craves food, shelter or clothing, to say nothing of his inalienable right to self-respect and to live as a member of the society and civilization to which he belongs. The reaction would probably remind one of the sense of satisfaction that filled the hearts of the suffering peasants of France when a famous queen suggested they eat cake if they had no bread.

It is indeed an anomalous situation in which the country finds itself; and one which confounds and refutes the so-called experts who are continually pronouncing social doctrines and predicting conditions which fail to materialize.

The United States today has millions of bushels of wheat rotting because there is no market for it; reserve quantities of cotton so great that states are considering legislation to prevent raising more until the present surplus has been disposed of; various other commodities and staples of life, more than enough to provide for the needs of all the nations of Europe as well as of America,—and, to climax the anomaly, probably one-half of the coined gold of the world. And yet millions, begging for work, are facing privation and want; a condition that did not prevail even during the late war. It is not a question of waste or of production. As a matter of fact bounteous nature, science and machinery have made possible an overproduction. It is a problem of distribution and a reasonable sharing of the superabundance which actually prevails.

The writer is not a believer in Socialism as a panacea, nor a disciple of Communism, Collectivism, Bolshevism, Sovietism, Anarchism, Nihilism, Fabianism, Fourierism, or any other man proposed corrective, for the shortcomings and ills of democratic constitutionalism or republicanism. If most of the social and political isms were practicable or possible of application they would not be necessary. They neglect the weaknesses of human nature and the fact that all men, while equal in the sight of God, are not equally possessed of the talents which men unconsciously recognize.

However, one does not have to profess any radical views or inclinations, nor accept any doctrines at variance with those laid down by the fathers of our country to appreciate the acuteness of a situation which the American Legion, a truly conservative body and unquestionably the most typically American in cross section of any national organization, in Convention assembled at Detroit last September, declared, in resolution, to be an emergency equal in gravity to that which confronted the nation in 1917.

It is folly to deprecate a statement from such a council of opinion, gathered as it is from every state, every city, every village and every hamlet in America. But a short time later that grand old man of modesty, General John J. Pershing, in an address over the radio, ventured the opinion that in some respects the "Tragedy of 1931 exceeds that of 1917." Every day serious minded men of national reputation are trying to arouse us from a state of lethargy. And yet, in the face of such sombre reflections, the seriousness of a national misfortune has been glossed over in the press, and from the platform, by persons who, day in and day out, without shame, have been repeating for the past two years, "Prosperity is just around the corner." Is it? Whence comes the omniscience essential to such a statement? Only childish ego could be charged with so little judgment. Can any national emergency be met by singing and repeating everything is getting better day by day? Could a war be won by Pollyanas, unconscious of, or immune to, the gravity of a situation calling for sacrifice? There are times when predictions and displays intended to prove that serious conditions do not exist or are about to end, are not useful, for when they fail of fulfillment they arouse not only contempt but eventually resentment, because they never spring from the lips of those in distress or from persons actually in want.

The problem before us is one that calls for serious reflection and sacrifice upon the part of all, that we may provide means of relieving want and distress; and invoking childish theories in the hope of inspiring confidence, appeals only to those whose indifference and smug complacency need to be rudely shaken. The man in want is not relieved but angered, and the man above want is not impressed.

There is none who doubts for a moment that the American spirit and American generosity, (in this instance it should be duty,) which are unequalled in the history of nations, will surmount the present economic crisis, as it has its predecessors in our history; but, indifference and delay in appreciating the seriousness of the situation merely prolongs the condition and postpones recovery. American resourcefulness and American sacrifice must provide work regardless of the purpose thereof and this demands that every citizen realize the gravity of an existing emergency. Work of any kind that involves the expenditure and transfer of money from one person to another is the urgent need of the moment and whether such work is useful or wasteful is not the important consideration.

Personally, the writer believes that the government, rather than private agencies, should collect and dispense the finances gathered for the purpose of providing employment. In this day and year, and particularly at this very moment a certain moratorium is greatly needed in the United States; one that would abolish a system and a practice unworthy of a nation possessed of untold resources and willing labor; one that would rid the American citizen of an annoyance and a burden far greater than that of taxation; one that would stop what has become almost a scandal,—Big business masquerading under the guise of Charity. With the aid of such a moratorium the duty of every American could be imposed by registration of his income and wealth. A percentage, increasing with the amount of one's income, could then be drafted

as was human life during the late war. An average of but one dollar a week would produce over $40,000,000 fifty-two times annually, which could be separated from all other funds and expended on the greatest program of construction that the world has ever known; one that would provide creative work for all; and one that would make of America—The pride of mankind. Only in this fashion can duplication be avoided, subterfuge eliminated and every person compelled to bear his share. It could be carried on under a governmental agency, as was the war, for the duration of the emergency.

However, this is purely an expression of personal opinion, and, in view of programs now under way the duty of every person possessed of any income is as obvious as was that of those capable of bearing arms during the emergency of 1917.

In the face of the distress of human beings it is folly to call expenditures that put people to work waste. One is not unmindful of the value of so-called efficiency and of the effects of economy upon taxation. But, it is inconceivable that any tax could impose a burden, equal to the contribution that every man will be called upon morally to make in order that employment may be provided for millions begging leave to earn their bread. Let us hope that in carrying out a program of relief the question of whether it is useless expenditure or waste will not be weighed against the objective of preventing starvation and strife.

Let us cease predicting and go to work. The so-called optimist and pessimist are equally useless, in fact harmful, in the present crisis. One thinks everything will right itself. The other believes that it is useless to try to right anything. Both produce the same result—Nothing. What is needed is neither optimism or pessimism, but something that might be called endeavorism; to which should be added a little of that spirit with which the youth of a nation has all too often gone forth to pay the sacrifice of life. This crisis will pass. It will disappear, with the aid of realization, endeavor and sacrifice, and one humbly sumbits that the sooner the realization and the greater the endeavor—the less will be the sacrifice.

EDITOR.

ETHICS AND BUSINESS

Engineers on Trial

An item of much interest to engineers is the following which appeared in the New York Times of recent date:

MILLIONS HELD AT STAKE

Foster-Wheeler Company Declares Alco Products Got Its Data on a "Fractionizing Tower."

A jury was chosen in Judge Nott's part of General Sessions yesterday afternoon for the misdemeanor trial of Harry R. Swanson, John S. Wallis and John Erter, engineers, on an indictment charging them with violating Section 554 of the penal law by communicating information they obtained while employes of the Foster-Wheeler Corporation to the Alco Products, Inc., with which they later became connected.

The case is said to involve millions of dollars in contracts for the separation of oil products through a "fractionizing" tower, of which the Foster-Wheeler Corporation contends it is the sole owner.

According to Thomas F. Kane, Assistant District Attorney, who is to begin presenting the State's case today, Swanson was the chief engineer of the Foster-Wheeler Corporation at 165 Broadway; Wallis was its sales engineer, and Erter the job engineer before they joined Alco Products, Inc., a subsidiary of the American Locomotive Company, which has an office at 220 East Forty-second Street.

The prosecution charges that the three men took plans of the separating tower, photostats of contract proposals and other documents from the files of the Foster-Wheeler Corporation and that on the basis of these documents that Alco Products was formed, with Joseph Davis, president, and Swanson as vice-president and engineer in charge of production. All three engineers entered not guilty pleas when they were released on small bail several months ago.

Because of the technical character of the evidence to be submitted during the trial, which is expected to last more than four weeks, Assistant District Attorney Kane and Herbert C. Smyth, Roderic Wellman and Hyman Bushel, defense lawyers, questioned the talesmen at length. Witnesses may include William W. Woodin, chairman of the board of the American Locomotive Company; President Davis of Alco Products, who also is executive vice-president of the American Locomotive Company; Louis B. Nutting, president of the Foster-Wheeler Corporation, and John Primrose, its vice-president.

Much of the time of the trial is to be taken up in questioning the witnesses on the 500 documents alleged to be the property of the Foster-Wheeler Corporation which, Mr. Kane said, were seized in the office of Alco Products May 19 by a deputy sheriff on a writ of replevin.

The proceedings of this trial, which will take place in the City of New York, may bring forth new matters of concern to engineers.

THE SKY LINE

Bridges and Buildings

Under the above caption a recent issue of "The New Yorker" contains the following interesting and well deserved tribute to a great engineer and to the profession which has done so much to create the modern city.

The George Washington Bridge now marks high water in current architecture. This statement is something of a paradox, for the bridge is sheer engineering, and such architectural treatment as has been planned for the bridge proper would probably only take away from its present beauty. Fortunately, the tradition of anonymity, which has died out in architecture, still clings to engineering and the allied arts. How many people know that this bridge was designed and built by Mr. Othmar Ammann for the Port of New York Authority?

The new bridge was opened a century after John A. Roebling, the founder of the organization that erected it, came to America. The Niagara Bridge, the Brooklyn Bridge, and the Philadelphia-Camden Bridge are some of the landmarks that give a sense of the steady progression that has taken place in the technique of bridge-building. The George Washington Bridge is now the best around the waters of New York, and that is no mean praise; for the oldest of them all, the High Bridge, was the finest monument in stone created before the Civil War, and old John Roebling's Brooklyn Bridge is perhaps the most satisfactory example of American art in the nineteenth century.

One could hardly have guessed from the first designs how good the new bridge would be. Originally the very element that gives the towers such interest and unifies the vertical and horizontal elements—namely, the steelwork itself—was to be hidden behind a facing of stone, designed by Mr. Cass Gilbert. Happily for the aesthetic success of the bridge, the stonework would cost more than two million dollars, and this part of the program was suspended. Let us hope that the lack of funds will last long enough to abolish in everyone's mind the notion that the steel should be encased.

The critical point in the design of a suspension bridge is the relationship of the cables and the piers. While Roebling apparently solved this problem in the original Niagara Railroad Suspension Bridge, which was demolished in the eighties, none of the later bridges followed this solution. Even the Brooklyn Bridge fell down at this point: the heavy masonry cornice spoiled the line of the cables and gave no indication of their continuous passage across the vertical support. As far as the eye could gather, each end of the cable might have been embedded separately in the pier. In the Manhattan Bridge, the big globes atop the piers were irrelevant and worthless; in the Williamsburg Bridge, the cage-effect spoiled the flow of the cables.

Mr. Ammann's solution of this problem is excellent. The cables are carried on the cradle over the tower in full view: for once one sees a suspension bridge aesthetically as well as mechanically in a state of suspension. And that is the whole point—the point that our bridge-builders have, with every good and honorable intention, so steadily missed. The square-shouldered towers are plainly there to carry the weight; in masonry these towers would look more bulky, but they could not possibly seem more sturdy and firm-set. At no other point in the design does one have the faintest feeling of weight: the cables draping themselves in a catenary curve—the curve made by a chain hanging between two fixed points—seem doubly delicate in contrast with the broad steel trusses of the towers.

The span itself forms another delicate line, almost tangent to the arc of the cables. Contrast this with the clumsy Peekskill Bridge: the smaller structure gives a far greater impression of weight, load, effort. In the new bridge one notices the weight the cables carry as little as one notices the speed of a high-powered car on a smooth concrete road: the very quality of effortlessness is part of the aesthetic effect. Here is that resolution of conflicting impulses in an harmonious order, which Messrs. Ogden and Richards, in "The Foundations of Aesthetics," have sought to show is the very soul and body of any aesthetic achievement. And how much this nonchalance, this sense of fluent ease, is due to the fact that the line of the cables is unbroken. Result: the profile from the river is perfect.

Since the approach to the bridge is still unfinished, one need say nothing about its present unsatisfactory state: the abrupt change from the ramp to the tower on the Manhattan side now creates a sharp right angle which cries for some transitional buttress. The towers themselves straddle the bridge in such a fashion as to bring the cables on either side of the inner arch; the head-on effect is therefore not quite as happy as in the different design of the Brooklyn Bridge. But all in all the structure is a delight to the eye: a piece of harmonious and imaginative engineering, the like of which is not yet to be found in any of our skyscrapers.

The Starrett Lehigh Building is another victory for engineering. It is a multiple factory building that goes from Eleventh to Thirteenth Avenue in Twenty-sixth and Twenty-seventh Streets; the architects are Cory & Cory. Here a cantilevered front has been used, not as a cliché of modernism,

(Continued on Page 18)

THE ENGINEER MILITANT

Excerpts from President's Address Delivered at Annual Meeting of A. S. M. E.

By ROY V. WRIGHT

During his term of office Past President Wright of the American Society of Mechanical Engineers sought to impress upon engineers the need for active participation in civil affairs. His retiring address contained some pertinent recommendations. Portions of the address follow:

"The engineer has been subjected to harsh and severe criticism in these recent years. While much of this may not have been deserved, it promises to be helpful to the profession—strange as it may seem—if for no other reason than that it is forcing the engineer more thoroughly and critically to examine his part in and contribution to our economic program and progress. Moreover it is encouraging him also to develop a larger and stronger professional consciousness. Again, it is a clear indication that certain elements, at least, are looking to him for leadership in helping to solve some of our more pressing economic problems.

"These are trying days, and in some ways they promise to mark a distinct turning point in the activities of our Society, and in the emphasis on its major objectives. We seem to be at the parting of the ways. With statesmanlike vision and constructive effort we may yet lift the engineering profession to the heights which it should occupy, in the light of its past achievements and of the leadership which it can help to give this present civilization. Stuart Chase has been a harsh critic of the engineer, and yet in his 'The Nemesis of American Business' he makes this statement: 'Plato once called for philosopher kings. Today the greatest need in all this bewildered world is for philosopher engineers.'

Civic Responsibilities

"We ought to give more serious consideration to the building up of a stronger professional consciousness, which will weld the engineers more closely together and inspire and encourage them to greater and more constructive unified efforts in the interests of humanity. Of all men the engineer should take a large and intelligent interest in helping to control all of the forces which have been set up as the result of our more complicated existence in this era of mass production. The very success of our nation depends upon the intelligence of its citizens and the extent to which they use this intelligence in working out problems of government—and these problems are steadily and rapidly becoming more serious.

"It is not strange, under these conditions, that students are being graduated from our colleges and universities, many of which are supported largely by public funds, without having any clear understanding of the elements of citizenship, or how they can best serve their communities and country? Engineers must take these responsibilities more seriously—as individual citizens or as groups in assisting their localities in city and county planning, or collectively by taking a larger part in public affairs of the state and nation.

Engineers, Not Specialists

"Up to this point I have carefully refrained from mentioning the mechanical engineer as such. Not that I am not proud of the profession and of this great Society which so ably represents it, with its multitudinous and far-flung activities. Basically, however, we are engineers, having the same fundamental training and, in a large way, the same objectives as other branches of engineering. We are seeing recognition of this in the fact that engineering colleges more and more are thinking in terms of the engineer rather than of the specialists. We see it in the extent to which graduate engineers shift from one type of engineering to another. We see it in the tendency for specialized groups of engineers in a community to combine in federations or all-inclusive clubs, each type of engineering functioning as a group within the larger group. We see it again in the extent to which our national engineering societies more and more are engaging in joint activities—in technical meetings, in our Engineering Societies Library, in public service through the American Engineering Council, and now, let us hope, in a joint program looking toward the elevation of the status of the engineer.

"Stuart Chase calls for philosopher engineers, but we need something more than this. We need militant engineers—aggressive and constructive—who will enthusiastically devote their energies to building up the engineering profession, raising it to higher levels, and will vigorously take the offensive in helping to find a solution of some of the great economic problems which we are now facing."

The New York State Society congratulates President Wright of the American Society of Mechanical Engineers and points with satisfaction to the unintentional approval of its aims and activities by such a distinguished engineer.

THE ENGINEER—A PARABLE

By D. B. STEINMAN

President, New York State Society of Professional Engineers
Past President, American Association of Engineers

One day three men, a Lawyer, a Doctor, and an Engineer, appeared before St. Peter as he stood guarding the Pearly Gates.

The first man to step forward was the Lawyer. With confidence and assurance, he proceeded to deliver an eloquent address which left St. Peter dazed and bewildered. Before the venerable Saint could recover, the Lawyer quickly handed him a writ of mandamus, pushed him aside, and strode through the open Portals.

Next came the Doctor. With impressive, dignified bearing, he introduced himself: "I am Dr. Brown." St. Peter received him cordially. "I feel I know you, Dr. Brown. Many who preceded you said you sent them here. Welcome to our City!"

The Engineer, modest and diffident, had been standing in the background. He now stepped forward. "I am looking for a job," he said. St. Peter wearily shook his head. "I am sorry," he replied; "we have no work here for you. If you want a job, you can go to Hell." This response sounded familiar to the Engineer, and made him feel more at home. "Very well," he said; "I have had Hell all my life and I guess I can stand it better than the others." St. Peter was puzzled. "Look here, young man, what are you?" "I am an Engineer," was the reply. "Oh yes," said St. Peter; "Do you belong to the Locomotive Brotherhood?" "No, I am sorry," the Engineer responded apologetically; "I am a different kind of Engineer." "I do not understand," said St. Peter; "what on Earth do you do?" The Engineer recalled a definition and calmly replied: "I apply mathematical principles to the control of natural forces." This sounded meaningless to St. Peter, and his temper got the best of him. "Young man," he said, "you can go to Hell with your mathematical principles and try your hand on some of the natural forces there!" "That suits me," responded the Engineer; "I am always glad to go where there is a tough job to tackle." Whereupon he departed for the Nether Regions.

And it came to pass that strange reports began to reach St. Peter. The Celestial denizens, who had amused themselves in the past by looking down upon the less fortunate creatures in the Inferno, commenced asking for transfers to that other domain. The sounds of agony and suffering were stilled. Many new arrivals, after seeing both places, selected the Nether Region for their permanent abode. Puzzled, St. Peter sent messengers to visit Hell and to report back to him. They returned, all excited, and reported to St. Peter:

"That Engineer you sent down there," said the messengers, "has completely transformed the place so that you would not know it now. He has harnessed the Fiery Furnaces for light and power. He has cooled the entire place with artificial refrigeration. He has drained the Lakes of Brimstone and has filled the air with cool perfumed breezes. He has flung bridges across the Bottomless Abyss and has bored tunnels through the Obsidian Cliffs. He has created paved streets, gardens, parks and playgrounds, lakes, rivers, and beautiful waterfalls. *That Engineer you sent down there has gone through Hell and has made of it a realm of happiness, peace, and industry!*"

ENGINEERING CENTRAL

For Salvaging the Engineering Profession

The following paper, bearing the above title, prepared and printed by Mr. William E. Bullock of 33 Rector Street, New York, N. Y., Member of the American Society of Mechanical Engineers and Fellow of the American Association for the Advancement of Science, is offered without comment. Neither the State Society nor THE AMERICAN ENGINEER has studied the proposals and the article is submitted solely for the attention and interest of engineers.

If we turn to observe the workings of the market, we shall observe that men are politically esteemed (apart from the aesthetic estimate of their friends and intimates) according as they are felt, as individuals or a class, to be in fact useful at the moment to the community or to a portion of it; that is, to the degree to which they are judged to "have something in them" for which there is a function or place, in so far as they are felt to "stand for something" which renders their aid as desirable as facilitating the will of society . . . . .

To those who are familiar with the promotion and present status of those corporate bodies to which we assign the "advancement of the *engineering profession,*" the above quotation will at once recall how perhaps a decade ago, the leaders

in this promotion became sharply conscious of a serious predicament. While they had regimented the engineers into fairly simple and workable organizations "for the good of these engineers," nevertheless holding up to the public that the "engineers had something in them which might be useful in facilitating the will of society," was another story, and they had missed it practically completely.

Upon this discovery, these promoters naturally cast about for means to overcome that which loomed up frighteningly. And their efforts are discernible in the redefinitions of *engineering* which they submitted to, and which were adopted by, the engineering societies at that time. Heretofore, *engineering* had been defined by these bodies as the *art and science of directing the materials and forces of nature;* with the awakening to the stalemate in public esteem which this definition had brought about through major circumstances such as the World War, the definition was changed by the societies to *directing the materials and forces of nature for the benefit of mankind.*

The change was advertised to the public conspicuously by setting up in the profession the first engineering-political organization to discover and work on questions having to do with the *benefit of mankind* part of the definition exclusively (the American Engineering Council, with headquarters in Washington). The change was also marked by the removal of restrictions imposed by the constitutions of the professional-engineering societies, against "participation in politics." Thirdly, the change led to the advent of a non-engineering society of professional engineers (The American Association of Engineers, with headquarters in Chicago) to deal solely with the employment of the engineer, and with his economic status, which was then in some jeopardy.

Although, as stated, it is now about a decade since the leaders of professional engineers recognized that they had lost irreplacable years in confusing *engineering* with *engineering economy* (confusing the shapes of engines and tools with theories of production, exchange and consumption of goods, *for, between, and by men),* yet remedy has evidently been insufficient, since the great depression of 1931 has precipitated another stalemate. For it is now found that though many professional engineers have at last become economically-minded, and socially-minded, and freely devote their time and energies to social and economic problems, there are still no axioms which they can follow, and no principles are crystalizing out of the confusion of their ideas.

The engineering profession is now thus confronted with a situation without precedent in its history, if be its history the activities of the several engineering societies. The situation is that, to survive, the "profession" must have axioms and principles which explain to the public engineering-economic phenomena, just as the axioms and principles of economics and politics explain to this same public economic phenomena and political phenomena respectively. And this is a hard task for a body of men whose leaders are still for the most part directing speakers before the engineering societies to draw on the blackboard engineering designs, and describe their parts!

Where Is the Remedy Now?

At first glance it would seem that to state the problem is to ensure its remedy. And it is inevitable that the remedy will be found in the future, if only at the expense of coalescing the engineering profession into one inclusive organization, and if only by the slow process of bringing up the generation of engineers now entering the engineering colleges to be men, and not technicians. But neither of these ways meet the situation as it has arisen now.

Neither is it possible to prepare quickly the axioms and principles of engineering economy which are required, for there is no body in existence qualified to prepare them; and if there were, and they were prepared, and were submitted "to the profession" for approval, the approval might easily take ten years. For it must be remembered that the engineering profession is a collection of men, or rather a series of collections of men comprising the memberships of the four national societies of civil, mechanical, electrical, and mining and metallurgical engineers; together with the national societies of automotive, heating and ventilating, refrigerating, chemical, agricultural, naval, safety, sanitary, illuminating, radio, gas, military, industrial, terminal, iron and steel, electrical, railway electrical engineers; together with several general societies with particular names, such as the Western Society of Engineers, the Engineers' Society of Western Pennsylvania, the Boston Society of Civil Engineers; together with several State societies, like the Connecticut Society of Civil Engineers, the Colorado Engineering Council; together with several societies in as many cities, like the Cleveland Engineering Society, the Engineers' Club of Philadelphia, the Technology Club of Syracuse; and then the American Engineering Council, the American Association of Engineers, and again several State societies like the American Association of Engineers, and then also the American Standards Association and the Engineering Foundation. This would seem to be about all, but there still must be added organizations of professional engineers within trade associations and chambers of commerce, and about 145 societies of embryo engineers in the 145 engineering colleges and schools, and, finally perhaps this time, the women's auxiliaries of the engineering societies, which are a potential influence.

These engineering organizations have potsful of activities, as all know, but they must be conspicuously ineffective in demonstrating to a doubting community that the "engineer has something in him," for in times of public crises, the public develops no thought whatever of turning to the professional engineer for understanding and help

towards the way out. The War proved this, and the depression proves it again. And indeed, as all know, few engineers ever attain the highest position in the business structure in normal times, much less in crises, and those who are elected to our governmental agencies find for their acts and actions more misunderstanding than anything else, and it has become an epithet that "an engineer is a poor politician."

In the light of the above paragraphs, it would appear that a "remedy now" is something which the engineering profession cannot pull out of its hat, first because it has no hat, and second because the hat has nothing in it but a mass of tiny scraps of paper on a few of which are inscribed some isolated words to do with management, economics, and politics, too few to place together into anything at all. This is the tragedy of it, and it would not be quite so bad were it not that through the critical year of 1931 the headline performers for the engineering profession before the public have insisted on stalking around the country displaying the emptiness of the hat. They could better by far have shown nothing, for the people have viewed their demonstrations as a new form of cruelty!

Manufacturing the Remedy Quickly

No remedy for the minute being available, it behooves the "profession" at this time to bend some energies to work out an adequate plan to be put into effect as soon as may be. "As soon as may be" means that we do not have time to set up new organizations, new engineering societies, but must perforce discover a plan which, while staying within the limits of practicability, will still be staggering enough to the societies to propel them out of their variegated inadequacies into the consideration of something "for the profession as a whole." And if the proposal embody none but sound elements, then there is no reason why it cannot be disclosed to the public at the same time the societies are considering it, that it may contribute a note of hope for the future to many millions whose faith in the "machine age" is at a low ebb and still sinking.

Personnel Resources Available Now

More to dramatize the kind of enterprise required than to advance a specific plan, remember that we have as an "engineering profession" a nucleus personnel consisting of 100,000 members of the engineering societies, practising engineers, and 79,000 students in the engineering colleges. Concede also, that for every professional engineer engaged in practice and every engineering student, there are ten or a dozen individuals working in the fields of economics and politics who need to understand and be guided by what we have referred to as the principles of *engineering economy*. That forecasts a *new and enlarged* engineering profession of nearly 2,000,000 people! (This need not disconcert the "aristocratic engineers"; rather, it will furnish them with a larger adoring audience.

The adult "affiliates" of the profession are naturally teachers, scientists, members of trade associations, members of chambers of commerce, economists, bankers, industrial managers, plant owners, lawyers, statesmen, politicians, editors, and newspaper men, and so on, and there are "junior" affiliates in the apprentices and students in these fields. All these affiliates are now regimented in their own organizations, and therefore their leaders are available to help enunciate the broad axioms and principals of *engineering economy*.

An "Engineering Central" Idea

All the above resources are available to be fitted in to a plan for the profession as a whole which, to focus it in the minds of a gigantic group, must be given a striking name. Call it for the time being "Engineering Central," and conceive that if such a name were broadcast now, the plan embraced in it might result in achievement which by 1940 would necessitate the physical embodiment pictured on the last page of this brochure.

Such an ENGINEERING CENTRAL is not a college for students and post-graduates, but is a headquarters necessary indeed to house adequately the activities of an organization planted and cultivated to "center" the ideas of a couple of million people engaged in the advancement of the axioms and principles of *engineering economy*, under the leadership of the ramified work and projects of the engineering societies, which would themselves have their headquarters there. Engineering Central could ultimately comprise administration buildings, library, auditoriums, exhibition halls, research laboratories, standard laboratories, broadcasting station, hotels, residences for staff, recreation facilities, transportation facilities, the enterprice being located near the center of population of the country.

Material Resources Avilable Now

The engineering societies are now collecting about a million dollars a year in dues. The "profession" owns the Engineering Societies Building in New York, which is worth $4,000,000. The Engineering Foundation in New York has a capital of about $1,000,000, the interest on which is available. The Engineering Societies Library, worth $400,000, is a nucleus of a library of engineering economy. Most of the engineering societies have unassigned cash surplus funds, and the total of such funds approaches a million dollars. Many of the societies have trust funds, and the total of these probably exceeds a million dollars. The engineering societies have together a staff personnel of over 1,000 trained workers, from $15,000 general managers to $12 office boys. And large endowments await projects.

Recommendation of a Year's Study

A policy for gathering up the millions of loose threads of engineering economy and weaving them into an intelligible pattern, using the existing engineering societies in a whole movement and contemporary organizations of "affiliates" with them,

(Continued on Page 13)

MEETING OF THE EXECUTIVE BOARD

Held in New York – January 18, 1932

Items of general interest which were acted upon at the meeting of the Executive Board held in New York included the following:

Certain proposals which were published in the last issue of THE AMERICAN ENGINEER suggested the propriety of recalling, as an evidence of co-operation and good faith, the complaint embodied in the resolution concerning the scope of examination for architects, which was adopted at Albany on February 10th, 1931. The Board voted to request the State Department of Education to return the complaint.

A report on the framing of the proposed legislation appearing in the December issue of THE AMERICAN ENGINEER was presented by the President. Favorable expressions of opinion have been received from engineering schools, societies and the Chapters throughout the State.

President Steinman outlined a campaign to enlist the press, publications and corporations in a campaign to properly and publicly acknowledge the works of engineers and to refrain from abuse of the term engineer.

The question of requiring every advertiser in the professional card pages of THE AMERICAN ENGINEER to insert the name of the professional practitioner identified therewith was raised and the Chairman of the Publicity Committee requested to investigate every advertisement in the professional columns.

A proposal relevant to the grave condition facing the county was submitted by Mr. A. V. Sheridan. The substance of the same is that the New York State Society confer with other engineering societies with a view to calling a Congress to which would be invited engineers and laymen for the purpose of presenting and considering proposals for relieving the prevailing conditions through the creation of employment, particularly that incidental to a nationwide program of public improvements. Mr. Sheridan strongly pleaded that the engineer be given an opportunity to prove his worth to society, contending that financiers and political economists have builded on false premises and that the house of cards resulting from their domination of world affairs is deteriorating so rapidly that the official declaration of a national emergency, and the invoking of commensurate nationwide governmental measures, is inevitable, if the wholesale acceptance (by millions of Americans crying out for food) of oligies, isms and other doctrines alien to American ideals and principles is to be prevented. It was suggested that an invitation be extended to all engineers urging the submission in writing of proposals, which would be reviewed by a representative board chosen from the various engineering societies and those deemed worthy of consideration submitted at a great meeting to be held in New York.

Attention was directed to the fact that the sum of $500,000, which was set aside by Henry L. Doherty for the purpose of permitting engineers to develop a program to end unemployment, which is in the final analysis the only definite means of preventing privation and distress, is still available for a definite proposal.

The Board adopted a resolution favoring the suggestion, and Mr. Sheridan was requested to serve as Chairman of a committee to enter into negotiations with other societies.

The Chairman of the Membership Committee reported that a program for an intensive drive would be inaugurated during the week of February 15th. Plans are being consummated for open Chapter meetings to which will be invited engineers of the entire county.

The Chairman of Chapter Activities proposed that the same be co-ordinated with the itinerary being arranged for Mr. Sheridan's tour of the State.

William F. Fields, President of Jefferson-Lewis Chapter, recommended that an exchange of speakers between Chapters be arranged with a view to enabling members to learn first hand of activities in other counties and to promote a co-operative spirit amongst Chapters.

The Winter Meeting of the Society has been tentatively set for Feb. 27th. The place is to be Albany. Mr. Edgar A. McKenna, of Queens, has been designated as State Chairman. Each Chapter is requested to appoint a special committee to co-operate with him. All arrangements and correspondence should be handled through Mr. McKenna and such others as he may officially designate to serve as members of the State Committee. Every Chapter is expected to be represented and arrangements for the same should be begun at once.

The Board extended a vote of confidence to, and expressed appreciation of the work performed by, President Steinman whose efforts merit the support of the entire profession.

CHAPTER AND COUNTY NEWS

Jefferson-Lewis

At the January meeting of the Jefferson-Lewis Chapter, held on Friday the 16th in Watertown, the guest speakers were Dr. Jos. E. Rowe, President of Clarkson Memorial College of Technology and Roy F. Hall, District Engineer of the New York State Department of Public Works.

Some excerpts from the address of President Rowe, which dealt with the engineer, his training and his place in society, are worth quoting:

"The prevailing idea that pervades the curriculum in the engineering school of the present day is that the student should be given a thorough training in the fundamental sciences, physics and chemistry and that this should be practicalized by laboratory and experimental work in technology.

* * * * *

"The engineering profession today, by all intelligent people, is regarded as worthy, as elevating, as contributing as much to the health, welfare and happiness of mankind as any other profession, and along with this feeling the engineer is expected to measure up in every way to the members of other professions, whether we are thinking of the ministry, the teaching profession, physicians, or others.

"In fact we have come to realize—and by that I mean society has come to realize—that the college training an engineer receives in our best engineering schools not only qualifies the engineer to practice a profession which is as highly evaluated by society as any other, but the training he receives in such institutions is a type of education that the present day world needs to solve its problems.

"The education that an engineer must have as a necessary asset to successful practice is far more definite, so far as knowledge is concerned, than the education which he receives in some of the so-called Liberal Arts colleges. A man must know mathematics—he cannot bluff about it. He must know physics; he must know chemistry; and these subjects require the adept use of the hands as well as the use of the mind. He cannot bluff about the definite knowledge of these subjects, nor can anyone bluff about the use of the hands.

* * * * *

"The engineering profession will get the recognition that it deserves only when we have, as we now do have, a state board to examine and pass upon the qualifications and admit applicants as professional engineers in exactly the same way that lawyers are admitted to the bar, and that physicians, dentists, and others are admitted to legalized practice. Work that the engineer has to do is just as important to human life and human society as the work of the physician and others."

Mr. Hall recounted the development of State Highways in New York and emphasized the coordinating influences of transportation vehicles and adequate roadways.

The attendance at the meeting was an encouragement to President William T. Fields and the calibre of men responding to the invitation to address the Chapter is an indication of the place it is destined to occupy in County and State affairs.

Monroe

Charles A. Marvin, the earnest and modest President of Monroe Chapter, reports an increase of 100% in the membership during 1931. Congratulations and best wishes for the coming year.

Engineers note with pleasure the appointment of C. Arthur Poole as City Manager of Rochester. Mr. Poole was for five years Consulting Engineer to that city and his selection as a presiding official is but another indication of the realization that the engineer is a logical person to direct everyday affairs of the civilization for which he is so largely responsible.

Westchester

On Jan. 6, 1932, the Westchester County Chapter held its regular monthly meeting at which W. Frederick Welsch presided. The meeting was attended by representatives of the Westchester County Realty Board, the Westchester Society of Civil Engineers, the Westchester Society of Architects, the Westchester Highway and General Contractors Association and the Westchester Chapter of the Associated General Contractors of America. Paul A. Bankson, Engineer of the New Rochelle City Planning Commission made a comprehensive report of the President's Conference on Home Building and Home Ownership held at Washington in December.

Westchester County Chapter is notable among the Chapters of the State for its well planned endeavors to cultivate friendly relations with the various civic, professional and business associations in the county. The establishment of such relations will result in the development of mutual respect and confidence and will facilitate cooperate endeavor to safeguard and promote the interests of the community and of the cooperating groups.

Queens

On December 17, 1931, Queens County Chapter elected the following officers and directors to guide the destinies of the Chapter after Jan. 1, 1932: J. Franklin Perrine, President; Andrew K. Johnson, First Vice-President; George P. Wynn, Second Vice-President; Charles W. McInenly, Treasurer; Alban Mazeau, Secretary; William C. Kochen-

dorfer, Director for one year; William Bertram, Edward J. Flanagan, Ignatius W. Conway, Albert Whitehead and George H. Bruns, Directors for two years.

It is at present impossible—and it will, in the future, be difficult—to think or speak of Queens County Chapter without thinking of its retiring president, Edgar A. McKenna. He held the wheel of leadership during three consecutive terms and guided the Chapter into the harbor of successful accomplishment. He rendered most honorable and efficient service to Queens County Chapter and to the New York State Society and his consistent interest and unremitting endeavors should be an inspiration to his successors. The work of successful organizations is always done by enthusiasts such as Mr. McKenna.

Kings

Kings County Chapter some time ago completed an admirably thorough analysis of the Revised Building Code which was then being prepared for the City of New York under the auspices of The Merchants Association of New York. This was a work of signal merit and its value as a contribution, toward the creation of a proper code for the government of building construction is being increasingly realized by the professional and civic groups of the Metropolitan area.

Advice has been received that Edmund J. McCormick, a member of Kings County Chapter, has been appointed by the Prudential Insurance Company as regional appraiser of Brooklyn and Long Island.

This news is noted with interest as Mr. McCormick represented with distinction the New York State Society of Professional Engineers at the World Engineering Congress held in Tokio, Japan, in 1929. His activities during his sojourn in "The Land of the Rising Sun" gained many friends for himself and the Society he represented, and, at his solicitation, distinguished representatives of the Japanese government have since been guests of the Society at annual dinners when they conveyed to the Engineers of New York good wishes from the members of the profession in the island empire of the Mikado.

Mr. McCormick is a past president of the National Association of Refrigerating Engineers and a member of the Brooklyn Engineers' Club. Outside of his professional organization affiliations he is a director of a number of companies, among which is the Brooklyn Mortgage Guarantee and Title Co. He is also connected with President Hoover's Conference on Home Ownership.

Bronx

Bronx County Chapter held its regular meeting on Jan. 7, 1932, at which a most interesting lecture was delivered by Arthur J. Lang on the subject of a 3½ months automobile tour made westwardly across the continent along a north route and returning over a southerly route. The lecture was illustrated by colored screen pictures of scenes of exquisite beauty which were viewed with evidences of delight by a large gathering.

At this meeting fourteen members applied for admission to the classes in Business Law and Public Speaking which are being conducted by Prof. Alexander Haring, President of the Chapter, and which can be attended by members of the Chapter without cost of any kind. Prof. Haring—a lawyer as well as an engineer, is giving most generously of his time and ability to advance the interests of the Chapter and its members and the large attendance at meetings, and the constantly growing membership, are evidences that his efforts are fruitful of beneficial results.

Students of New York University School of Engineering have been guests of the Chapter at recent meetings.

The following item is taken from the New York University Quadrangle:

"The biggest piece of news comes from the C. E. group which will be inducted into the A. S. C. E., the beginning of next semester. Dr. D. B. Steinman, President of the New York State Society of Professional Engineers, will be the guest of honor at the installation ceremonies. This will be an event of events, and we hope it will mark the beginning of a new era in student activities at the College of Engineering. Accept our most cordial wishes for a long and outstanding existence."

RAPHAEL J. SMYTH
Chairman, Committee on
Chapter Activities.

Engineering Central

(Continued from Page 10)

must have often passed through the minds of many of the eminent individuals who have for years made the engineering profession their special study. But the necessity for some comprehensive plan has never appeared so great as it does now.

For this reason, it is certain that the mere enunciation of the necessity will suggest to many a checking up of the validity of the statements made here, and, if they are found correct, a study, under some highly responsible auspices with preferably only a minority of engineers, of a unified policy and motivation. Such a study could not be hasty, and would prabably consume about a year, which would be time well spent even if only the man in

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CONGRESSIONAL LEGISLATION

Proposal Gives Proper Recognition to Both Architects and Engineers

The following measure was introduced in the House of Representatives on Dec. 17th, by Congressman Robert Green of Florida:

A BILL—H. R. 6187

To direct the Secretary of the Treasury to contract for architectural and engineering services in the designing and planning of public buildings.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Treasury is hereby authorized and directed to employ by contract, and at the established rates of compensation, outside professional or technical service of competent persons, firms, or corporations, for the architectural and engineering designing and planning of such Federal buildings as are now or may, in the future, be placed under the jurisdiction of his department, without reference to the Classification Act of 1923, as amended, or to section 3709 of the Revised Statutes of the United States.

Sec. 2. That such employment shall be based at all times on the highest grounds of proven professional ability in order that our Federal architecture may truly represent our national genius and keep pace with the rapid development of the arts of architecture and engineering. Architects or engineers shall not be employed without prior submission to the Secretary of the Treasury of satisfactory evidence of their qualifications and experience.

Sec. 3. That wherever circumstances warrant, such services shall be contracted for by the employment of the ablest architects and engineers resident in the general sections of the country wherein such Federal buildings are to be erected.

Sec. 4. At the discretion of the Secretary of the Treasury, the employment of outside architects or engineers may be omitted in connection with public buildings of a total cost for building and site of not more than $50,000.

Sec. 5. That all such individuals, firms, or corporations shall render their services subject to the approval and under the direction of the Supervising Architect of the Treasury, whose duty it shall be to act for the Government in all matters regarding sites, the allotment and subdivision of space, the control of technical detail, the letting of contracts, and the supervision of the erection of said Federal buildings.

Sec. 6. Nothing in this Act shall be construed to affect the duties of the Supervising Architect of the Treasury in regard to maintenance, alterations, repairs, or supervision of either existing or proposed public buildings.

Sec. 7. That the cost of compensation for outside professional or technical services shall be charged to the appropriation for the construction of the building for which such services are rendered.

Sec. 8. All Acts or parts of Acts inconsistent with the terms of this Act are hereby repealed.

This legislation is being sponsored by the American Institute of Architects and other groups. Opponents contend that the measure is not in the public interest but is an unwarranted attempt to compel the government to substitute private practitioners for those now in governmental employ. Aside from the merits of this controversial angle, the engineer acknowledges the fairness of a proposal, which, very properly, gives equal recognition to both the architectural and engineering professions. Such recognition is all the engineer desires. He has never asked for more and gladly expresses approval of such policy. He commends it to the attention of architects in New York.

NEWS ITEMS

From Here and There

AMERICAN SOCIETY OF CIVIL ENGINEERS

At the annual meeting held in New York Herbert S. Crocker of Denver, Colorado, was elected President of the Society. Arthur S. Tuttle, Consulting Engineer to the Board of Estimate of the City of New York, and David C. Henry of Portland, Oregon, were chosen Vice-Presidents, and Edward P. Luper of Buffalo, John H. Gregory of Baltimore, Md., Henry E. Riggs of Ann Arbor, Mich., Melvin L. Enger of Urbana, Ill., Robert Hoffmann of Cleveland, Ohio, John C. Stevens of Portland, Oregon, and Ernest B. Black of Kansas City, Mo., were made directors for three years.

Awards for 1931

Presentation of awards for the year 1931 was made to the following:

Normal Medal:

To Floyd A. Nagler, M. Am. Soc. C. E., Professor of Hydraulic Engineering, University of Iowa,

Iowa City, Iowa, and Albion Davis, M. Am. Soc. C. E., Chief Engineer, Mississippi River Power Company, Keokuk, Iowa, for Paper No. 1744, "Experiments on Discharge Over Spillways and Models, Keokuk Dam."

J. James R. Croes Medal:

To John R. Freeman, Past-President and Honorary Member Am. Soc. C. E., Consulting Hydraulic Engineer; President, Manufacturers Mutual Fire Insurance Company, Providence, R. I., for Paper No. 1726, "Flood Control on the River Po in Italy."

Thomas Fitch Rowland Prize:
Rudolph Hering Medal of the
Sanitary Engineering Division:

Both to Samuel A. Greeley, M. Am. Soc. C. E., Consulting Engineer, Chicago, Ill., and William D. Hatfield, Assoc. M. Am. Soc. C. E., Superintendent Sewage Disposal Plant, Decatur, Ill., for Paper No. 1738, "The Sewage Disposal Works of Decatur, Illinois."

Arthur M. Wellington Prize:

To George F. Schlesinger, M. Am. Soc. C. E., Chief Engineer and Managing Director, National Paving Brick Manufacturers Association, Washington, D. C., for Paper No. 1736, "The Practical Utility of Highway Transport Surveys."

Lists Government Services

A recent publication of interest and of value to all engineers has been recently forwarded to members of the Society. It is titled—Government Services Available to Civil Engineers. Now members may secure copies for $0.50.

* * *

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Society to Co-Operate in Framing Uniform Registration Law

The Council of the A. S. M. E., on December 4th last, voted unanimously to cooperate officially with other organizations in the formation of a uniform registration law for engineers. The Society has heretofore been represented at joint conferences by unofficial representatives, but the Council believes the time has arrived when the Society should take official action in order that it may assist in the formation of such laws as will carry out truly the essential purpose of such legislation, namely, the protection of life, health, and property.

The Committee on Registration of Engineers has been following this matter for some time and will represent the A. S. M. E. in conference with other societies. This committee not only will be very glad to receive suggestions from the members of the Society, but it also hopes that they will keep in touch with this very important subject in their respective communities that the engineer may not be discriminated against by adverse legislation.

More than half of the states in the Union and the provinces of Canada have adopted engineers' registration acts and it is to the interest of engineers to familiarize themselves with the provisions of the acts in the states or provinces where they practice. Some of these acts specifically mention mechanical-engineering practice while other acts cover engineering so vaguely that it is difficult to determine who must be registered.

* * *

The following meetings of interest to engineers of New York are scheduled for the month of February:

Metropolitan—February 11, Engineering Societies Building, 29 West 39th Street, New York, N. Y., at 8:00 p. m. Subject: "The Progress of Television," by Walter B. Sloane. Mr. Sloane will outline the history of television, and will follow his talk by a demonstration of broadcasting. This is certain to prove an intensely interesting program to which the ladies are especially invited.

Schenectady—February 4, Edison Club Hall at 8:00 p. m. Subject: "Air Conditioning in Building," by Alexander R. Stevenson, Jr., engineer of the General Electric Co.

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AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

Niagara Section

Two meetings of interest to engineers in northern and western New York are announced by the Niagara Frontier Section of the Institute.

The first will be held at Niagara Falls on February 19, 1932, and will be a joint meeting with the Toronto Section. The second will take place on March 11th in Buffalo and will be addressed by I. E. Moultrop of Boston, Vice-President of the A. I. E. E.

* * *

BUILDING CODE FOR CITY OF NEW YORK

Ready for Approval

The much discussed Building Code for the City of New York, prepared under the direction of the Merchants' Association, has been completed. It was forwarded to the Mayor on January 14th, and represents three years of effort upon the part of over one hundred persons working under the direction of John Lowry, Engineer and Builder.

Before adoption the proposals must be approved by the Board of Aldermen and must receive the signature of the Mayor. Public hearings are to be held shortly and there is likely to be considerable controversy. Several large civic organizations have indicated opposition to certain provisions. The Code committee of the Metropolitan Chapters, which has made numerous recommendations, will review the complete report of Kings County Chapter with a view to proper presentations at the public hearings.

FLEETING FAME

Oh! Why Should the Spirit of Mortal be Proud!

A short time ago Los Angeles police officials arrested the entire cast engaged in the presentation of "Lysistrata" on the ground that the play was indecent. After booking everybody at the Police Court it was discovered that an important and much desired person was missing. An officer was ordered to locate the author and, if possible, take him into custody. Poor Aristophanes, resting quietly for 2300 years, is about to have his peace disturbed.

P. S.—Latest information indicates that the officer has been advised of the demise of the Greek dramatist.

* * *

ENGINEERING CENTER

Columbia University Plans

Recent announcements by President Nicholas Murray Butler, President of Columbia University, advise that plans for a huge $20,000,000 Engineering Center, in emulation of the existing Medical Center in New York, are in process of formulation. Such an institution would doubtless focus attention upon engineering and aid in creating public interest in the profession.

LICENSES RECOMMENDED

December, 1931

Ager, C. Leonard
Troy, N. Y.

Attkiss, Philip
Brooklyn, N. Y.

Baldwin, Marvin
Westbury, L. I.

Barclay, Frank D.
Schenectady, N. Y.

Barnes, Leon D.
Hastings-on-Hudson, N. Y.

Barron, James Lloyd
White Plains, N. Y.

Bassett, Harold R.
Pleasantville, N. Y.

Batson, Benjamin A.
Poughkeepsie, N. Y.

Baylis, Edward R.
Rockville Centre, N. Y.

Berhaupt, August E.
Hadley, N. Y.

Burton, William
Upper Montclair, N. J.

Carolan, William
Richmond Hill, N. Y.

Cheesman, Stanley A.
Lyons Falls, N. Y.

Chiarello, Dominic M.
Brooklyn, N. Y.

Connely, Chas. B.
Ballston Spa, N. Y.

Couch, Albert E.
College Point, L. I.

Craig, Richard A.
New York, N. Y.

Delchamps, Harold J.
New York, N. Y.

Dixon, William L.
Forest Hills, N. Y.

DuBois, Lester W.
Pelham Manor, N. Y.

Dull, Dan
Mt. Vernon, N. Y.

Dyke, George H.
Binghamton, N. Y.

Edelman, Beril
New York, N. Y.

Elmore, Cyrus B.
Saratoga Springs, N. Y.

Fertik, Joseph
Brooklyn, N. Y.

Finebaum, Harry J.
New York, N. Y.

Five, Helge
Babylon, L. I.

Fuchs, Samuel J.
Brooklyn, N. Y.

Godfrey, Ralph
New York, N. Y.

Graw, Willard S.
Albany, N. Y.

Hassan, Sidney Nuyhmon
Brooklyn, N. Y.

Isaacs, Charles
Rochester, N. Y.

Keenan, Chas. G.
New York, N. Y.

Latimer, Claude A.
Holyoke, Mass.

Leerburger, Franklin J.
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ELECTRICITY

A Short Commentary

The term electricity, derived from the Greek elektron (amber), was originally applied to the inexplicable cause of the sparklings, attractions and repulsions which accompany the friction of amber and kindred substances. This same cause gives rise to many other phenomena,—if such statement can be accepted in lieu of a better explanation. Dr. William Gilbert, British Physicist, first used the term electrical about the year 1600 A. D. to describe the attraction manifested by certain materials when rubbed and placed near light bodies. Despite the fact that countless experiments have been made with a view to ascertaining the true nature of electricity, there has been to date no definite demonstration of what underlies or constitutes the subtle and elusive agent which has well nigh revolutionized civilization. Its behavior in some respects resembles a fluid incapable of compressibility, but it differs in so many respects from any known fluid that it cannot be so classified in the ordinarily accepted use of the word.

One school of thought believes that electricity is identical with the elastic, incompressible medium that is believed to pervade all space and which for want of a better name is termed ether. This hypothesis, the said school contends, explains the conveyance of vibrations and accounts for the phenomena of positive and negative electrifications, by attributing them to displacements in the said ether at the surface of bodies. These phenomena result from force action comprehended within electric and magnetic fields.

Electrification of material bodies is caused by the presence of fine particles called electrons which are in size approximately 1/1800 of that of an atom of hydrogen. The ether in which these electrons exist is believed to be in permanent condition of strain constituting an electric field.

James Clerk Maxwell, the famous English scientist, in his work "Electricity and Magnetism," demonstrates his contention that electromagnetic action travels through space in transverse waves similar to and having the same velocity as light. Heinrich Hertz, the distinguished German Physicist's direct experiment, verified Maxwell's theory.

The discovery by Wilhelm Konrad Roentgen, also a German Physicist, of the X—or Roentgen rays aided materially in throwing light upon the subject, as did the discovery of radioactivity and the electron.

The discoveries of Antoine César Becquerel, the first of three generations of eminent French Scientists, and of Pierre and Marie Sklodowska Curie also contributed to the search for the elusive force. It is now generally believed that the atoms of all the elements are composed of hydrogen nucleui called protons, helium atoms and electrons. These components are thus fundamental units of matter and perhaps indicate that it will eventually be possible to prove conclusively that all matter is of electrical character. During the past few years numerous hypotheses have been postulated and experimental research carried on in many parts of the world by eminent scientists. From these endeavors arises the impression that the elements in nature, as now understood, may eventually have to be recast in the category of absolute knowledge or true science. The perfection and harmony of nature becomes more and more apparent and impressive, and the simplicity of the great scientific men, whose minds have soared so far into the domains of Nature's Storehouse, stands forth in contrast to the dogmatic attitude of the expounders of miscalled and pseudo sciences who proclaim their unsupported opinions with much positiveness. An Einstein, an Eddington, a Jeans or a Milliken, says he thinks something may be true and suggests that experiments be made to prove or disprove his opinion. The exponents of so-called (actually miscalled) social sciences never think. They invariably know (?).

The applications of electricity are so numerous, varied and valuable as to be apparently limitless. Today it is unquestionably the most important factor in the progress of modern civilization. The important inventions resulting from it such as: the telegraph, telephone, wireless communication, electric light, motors, generators, dynamos and electric transportation systems have been milestones in the march of progress. Its influence upon the civilization of the future can only be imagined. Unfortunately, its destructive possibilities are equally difficult to limit by imagination. The regulation and control of this great natural force will one day become a question of vital importance to humanity. In the hands of either fools or frauds its application can become the greatest destructive agency known to mankind and annihilation is within its potentiality. When wars are discussed, and disarmaments deliberated or agreed upon, let the diplomats not lose sight of this great unfathomable force, against which cannons, battleships, submarines and airplanes are but toys in the hands of children.

The visionary can see, however, if adequate control can be exercised, that electricity holds forth promise of being one of the greatest, if not the supreme gift of material knowledge that the Creator has divulged to mortal man. The 19th century has been termed the age of steam and its use completely changed humanity's outlook. The 20th century will doubtless be regarded as the age of electricity and its effect upon human existence can scarcely be conjured up even by the most imaginative of men.

Engineering Central

(Continued from Page 13)

the street could be assured that the engineers had set aside their meditations upon the design of engineering appliances, had re-called their amateur exponents of economics, and politics, had vigorously denied responsibility for wars and depressions, and had set about the serious business of formulating the axioms and principles of *engineering economy,* and providing an adequate policy for their promulgation with the aid of their fellows at large.

The Sky Line

(Continued from Page 6)

but as a means of achieving a maximum amount of daylight and unbroken floor space for work requiring direct lighting. The aesthetic result is very happy indeed. The contrast between the long, continuous red-brick bands and the green-framed windows, with sapphire reflections or depths, is as sound a use of color as one can see about the city. The north side of the structure is genuinely exciting: here the requirements of the building code have created a setback of the otherwise unbroken upper windows, and the curved passage has been very ably handled.

Across the way from the Starrett Lehigh Building is an admirable old warehouse of the eighties, with solid brick walls, grudgingly punctuated with windows: the contrast between the two structures points not merely to different functions, but to an essential difference between the old architecture, with its emphasis on the wall, and the new architecture, with its interest in the opening. There is one weak point in the newer building: in what is apparently a section for administrative offices on the south side, the rhythm of the building is broken: the windows are narrow and high, and the vertical effect is heightened by feeble tabs of ornament on the uppermost walls. Even granting the difference in purpose between the factory section and the offices, there was no reason for breaking the horizontal accent—still less for spoiling the noble severity of the facade. Had the interest that went into this ornament been spent in marshalling into an effective design the rabble of water tanks on the top of the factory building, the effort would have been better spent. But the notion that ornament is architecture and that verical lines are sacred to office buildings somehow dies hard.

—L. M.

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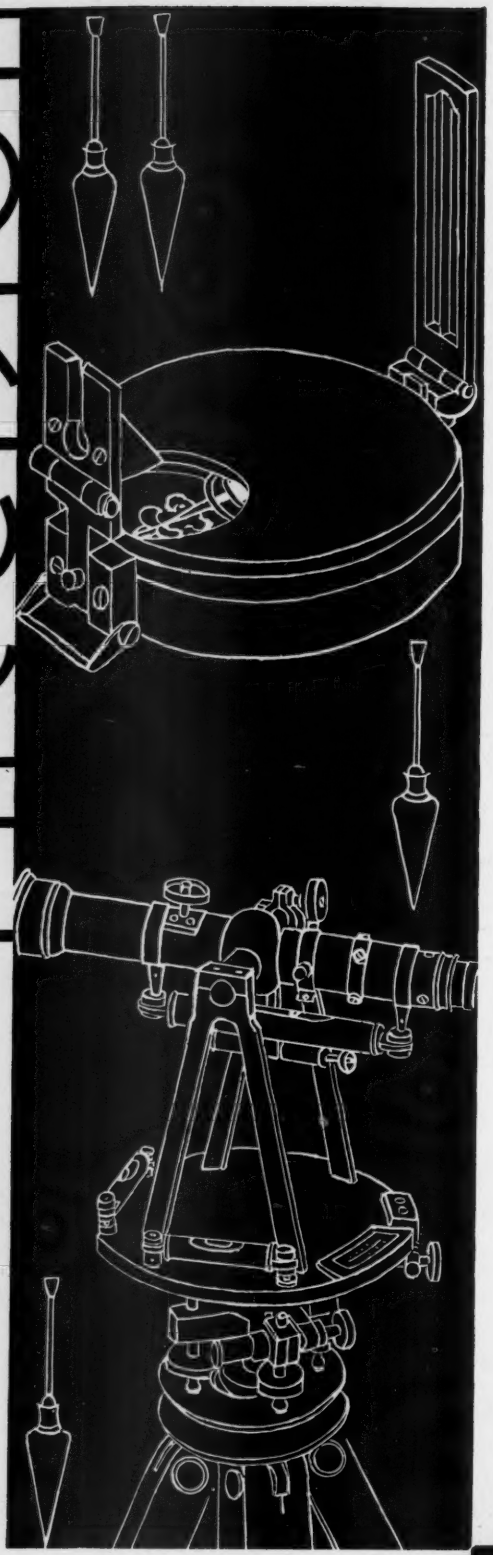

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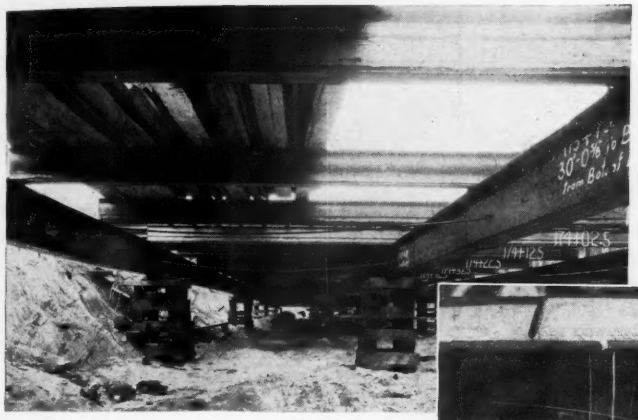

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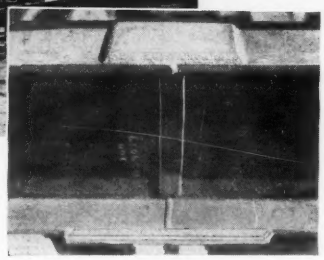

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